

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte THOMAS CAMIS,  
C.S. CHAN, and GARY HANSON

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Appeal No. 2000-0335  
Application No. 08/780,551

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ON BRIEF

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Before HAIRSTON, BARRY, and LEVY, Administrative Patent Judges.  
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection<sup>1</sup> of claims 1, 3-7, 9-11, and 13-26, which are all of the claims pending in this application.

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<sup>1</sup> An amendment (Paper No. 10, filed October 26, 1998) submitted subsequent to the final rejection has been denied entry by the examiner (Paper No. 11, mailed January 6, 1999).

BACKGROUND

Appellants' invention relates to a toner projection system. An understanding of the invention can be derived from a reading of exemplary claims 1 and 13, which are reproduced as follows:

1. A toner projection device, comprising:

a first electrode;

a second electrode

a third electrode;

an orifice in the third electrode;

the second electrode interposed between the first and third electrodes and the second electrode spanning the orifice in the third electrode;

a source of a.c. voltage operatively connected to the first and third electrodes;

a control means for intermittently applying a d.c. voltage to the second electrode.

13. A method for projecting toner in a projector having first second and third electrodes arranged generally parallel to one another in a spaced apart relationship, the second electrode interposed between the first and third electrode and the third electrode having at least one orifice therein, the method comprising the steps of:

forming a cloud of toner particles between the first and third electrodes; and

projecting toner particles through the orifice in the third electrode.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Kotz	3,816,840	Jun. 11, 1974
Fujii et al. (Fujii)	4,491,855	Jan. 1, 1985

Claims 1, 5, 7, 10, 13-19, and 21-26 stand rejected under 35 U.S.C. § 103 as being unpatentable over Fujii.

Claims 3, 4, 6, 9, 11, and 20 stand rejected under 35 U.S.C. § 103 as unpatentable over Fujii in view of Kotz.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 14, mailed June 7, 1999) and the final rejection<sup>2</sup> (Paper No. 9, mailed October 26, 1998) for the examiner's complete reasoning in support of the rejections, and to appellants' brief (Paper No. 13, filed March 22, 1999) and reply brief (Paper No. 15, filed August 9, 1999) for appellants' arguments thereagainst. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered. See 37 CFR 1.192(a).

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<sup>2</sup> Incorporated by reference into the examiner's answer (answer, page 3).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejections advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer. Upon consideration of the record before us, we affirm-in-part.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal,

Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

We begin with the rejection of claims 1, 5, 7, 10, 13-19, and 21-26 under 35 U.S.C. § 103 as unpatentable over Fujii. We turn first to independent claims 1 and 7.

The examiner's position (final rejection, page 2) is that in Fujii, second electrode 3 is aligned with orifice 4 of third electrode 1. The examiner asserts (answer, pages 3 and 4) that:

[S]ince a rejection over 35 U.S.C. 103 has rendered to address this issue, Fujii et al. meets the requirements as an equivalent for the term "span". In addition, a review of Appellant's specification does not point to any criticality for why the second electrode must "fully span" the orifice of the third electrode. Although the feature of the second electrode "fully spanning" the orifice in the third electrode is illustrated in Figures 1 and 2, "fully spanning" was never discussed as carrying any weight in the original specification. Further, stated in the previous office action, Webster's Ninth New Collegiate Dictionary defines "span" as "an extent, reach or between two limits". Figures 5C of Fujii et al. teaches that the second electrode #3 extends between two points of orifice.

Appellants assert (brief, page 4) that Fujii does not teach or suggest a second electrode between first and third electrodes wherein the second electrode spans an orifice in the third electrode, as recited in claims 1 and 7. Appellants argue (brief, pages 4 and 5 and reply brief, pages 1 and 2) that base electrode 3 of Fujii does not fully span opening 4 in base electrode 3 and signal electrode 1. Appellants additionally argue that it is impossible for the second electrode in Fujii to fully span the orifice in the third electrode because opening 4 is formed through both electrodes, and that (brief, page 5) "the device of Fujii would not work if base electrode 3 fully spanned opening 4 -- there would be no hole through which the toner could pass."

We observe that claim 1 recites the "second electrode spanning the orifice in the third electrode." Claim 7 contains similar language. We find that neither claim 1 nor claim 7 requires that the second electrode fully span the orifice in the third electrode, and note that the amendment containing the proposed claim language "fully" was not entered by the examiner, as acknowledged by appellants (brief, page 5). To meet the language of claims 1 and 7, the second electrode need only span the orifice in the third electrode, and need not completely cover the orifice as asserted by appellants.

Fujii discloses (col. 2, lines 15-19) "reference numeral 1 designates signal electrodes to which voltages may be independently and individually applied, reference numeral 3 denotes base electrodes which continuously span distances between a plurality of holes." Fujii further discloses (col. 2, lines 22-25) that "[d]esignated by 4 are holes forming openings which extend through the signal electrodes 1, the base electrodes 3 and the insulating members 2 with the same cross-sectional area." In addition (col. 5, lines 44-53), when condensation of the toner or admixture of rough foreign materials with the toner occurs during long use of the toner, the openings 4 may become clogged. In figure 5B (col. 6, lines 9-13), the openings 4 of the insulating

members 2 and the signal electrodes 1 are continuously widened to prevent toner from contacting the inner wall of the openings 4. In figure 5C, (col. 6, lines 36-40) the diameter of the insulating members 2 and the signal electrodes 1 are large relative to the diameter of the base electrodes 3. In both figures 5B and 5C, the enlarged openings are for the purpose of preventing the openings from being clogged by toner.

From the disclosure of Fujii, we agree with appellants that Fujii does not disclose that the second electrode spans the orifice in the third electrode, because although the holes forming the orifices extend through the base electrode 3, the signal electrode 1, and the insulating members 2, the second electrode continuously spans distances between the holes and does not span the holes themselves. We are not persuaded by the examiner's assertions that the electrodes 3 in figure 5C of Fujii span the orifice 4. From the dictionary definition provided by the examiner, it is clear that to span the orifice, the electrode would have to extend, reach, or spread between two limits, i.e., across the orifice in the third electrode, which the electrode 3 does not do, as electrode 3 provides an open circular area in the center, through which the orifice extends. We find that in figure 5C, electrode 3 partially spans the orifice 4, but does



not span the orifice 4. As noted by appellants (brief, page 5) claims (2 and 8) previously recited "at least partially spanning" and that this language was changed to "spanning."

We find the examiner's arguments (answer, pages 3 and 4) that the claim limitation "the second electrode spanning the orifice in the third electrode," lacks "criticality" and was never discussed in the original specification as "carrying any weight," to be misplaced. The issue before us is whether the differences between the electrode structure of Fujii and appellants' claimed device would have been obvious to a skilled artisan. The examiner cannot ignore claim limitations under the guise that the original specification does not specifically set forth that the structure of the electrode is critical to the invention, or that the disclosure never discussed the electrode structure as "carrying any weight." Thus, we find that the examiner has applied an incorrect standard to the claims.

Nor are we persuaded by the examiner's assertion that the structure of Fujii is the equivalent of the claimed spanning of the orifice by the second electrode. In order to rely upon equivalence as a rationale for supporting an obviousness rejection, the equivalency must be recognized by the prior art. See In re Ruff, 256 F.2d 590, 599, 118 USPQ 340, 348 (CCPA 1958).

Here, the examiner has failed to establish any teaching or suggestion in Fujii, or any convincing line of reasoning that would suggest equivalency between the claimed electrode structure and the electrode structure of Fujii. From all of the above, we find that the examiner has failed to establish a prima facie case of obviousness of independent claims 1 and 7, as well as dependent claims 5, 10, and 21-24. Accordingly, the rejection of claims 1, 5, 7, 10, and 21-24 under 35 U.S.C. § 103 is reversed.

We turn next to independent claim 13. The examiner's position (final rejection, page 4) is that although Fujii does not specifically disclose that a "toner cloud" forms between the first and third electrodes, Fujii discloses in figure 3 how the toner is transferred from first electrode 7 to third electrode 1. According to the examiner, toner 11 "appears with reasonable certainty to be forming a 'cloud' between the electrodes," and that it therefore would have been obvious to utilize a toner cloud between the electrodes of Fujii. The examiner additionally asserts (answer, page 4) that toner 11b in figures 5A and 5B is shown as a cloud. Further, the examiner relies upon a dictionary definition of a cloud as "an aggregate of charged particles," but recognizes that not all aggregates of charged particles form a cloud.

Appellants assert (answer, 7) that appellants' cloud of toner particles is substantially different from the layer of toner on conveying member 7 of Fujii. Appellants argue that a layer of toner particles cannot reasonably be deemed a cloud of toner particles, and that Fujii cannot reasonably be read to teach or suggest the step of forming a cloud of toner particles between the first and third electrodes. Appellants additionally argue (reply brief, page 3) that figure 3 of Fujii only shows toner 11 adhering to toner conveying member 7, and asserts that "[t]he most that can be said about either Fig. 3 or Fig. 2 in Fujii is that toner 11 is conveyed to the vicinity of hole 4 as a layer on toner conveying member 7."

Fujii discloses that an object of the invention is to convey the toner to control means while holding the toner on a toner supporting member, and forming an alternating electric field between the control means and the toner supporting member (col. 1, lines 46-50). As shown in figure 3, a toner container 13 is shown along with blade 14 which is used to apply the toner 11 onto the toner conveyer member 7 (col. 3, lines 56-60). As shown in figure 4, the toner on the conveying member 17 is made into a uniform thin layer by the action of blade 14 and passes to the position of the control member (col. 5, lines 14-17). Toner 11

is adhered onto the toner conveying member 7, while being attracted to fixed magnet 12 (col. 4, lines 3-6). As the toner reciprocally moves between the base electrodes 3 and the toner conveying member 7 due to the action of the AC voltage, the control member is rubbed by the reciprocally moving toner, providing a control member cleaning effect (col. 2, line 66 through col. 3, line 3). In addition, (col. 4, lines 54-58) "[f]urther, if the apparatus is designed such that the toner itself contacts the control member when the toner reciprocally moves between the toner conveying member and the control member, this toner cleans the toner conveying member side." If the toner is conductive, the charged toner reciprocally moves between the conveying member and the control member due to the alternating electric field formed between the two members (col. 4, line 67 through col. 5, line 2).

Fujii additionally discloses (col. 5, lines 33-42) that:

[T]he toner can be readily conveyed to the control member without being scattered and, due to the alternating electric field formed between the toner supporting member and the control member, the toner can be supplied to the control member without being scattered. Also, the toner reciprocally moving between the above-mentioned two members due to the alternating electric field lightly strikes the surface of the control member, and thus the toner is prevented from clogging the openings 4.

Fujii further discloses (col. 6, lines 19-23) that:

Where the toner, like the condensed toner 11b, cannot pass through the openings 4, the condensed toner 11b is brought back to the toner conveying member 10 side by the AC electric field and does not clog the openings 4.

Moreover, Fujii discloses (col. 5, lines 46-49) that "when condensation of the toner or admixture of rough foreign materials with the toner occurs during long use of the toner, the diameter of the toner may become approximately equal to the diameter of the openings 4," and that reference numeral 11b denotes the condensed toner (col. 5, lines 62-64).

From the disclosure of Fujii, we do not agree with the examiner's assertion that toner 11b represents a cloud of toner. As disclosed by Fujii, toner 11b represents condensed toner formed by condensation or admixture of rough foreign materials with the toner. Thus, we find that 11b represents condensed toner and not a cloud of toner.

From the disclosure that the toner particles 11 are uniformly applied, and adhere to the toner conveying member, we find insufficient evidence to suggest that Fujii discloses the layer of toner on the toner conveying member 7, 17 to be in the form of a layer. From the disclosure of Fujii that the toner can

be readily supplied to the control member without being scattered, we find that the toner 11 on the toner conveying member is capable of moving from the toner conveying member to the control member. However, because Fujii discloses that due to the alternating electric field, the toner particles are reciprocally moved between the toner conveying member and the control member to clean the toner conveying member; lightly strikes the surface of the control member to prevent the openings 4 from clogging; brings back condensed toner 11b to the toner conveying member, we find that the toner reciprocating between the toner conveying member 7, 17 and the toner control member (figure 1A) forms a cloud. We therefore will sustain the rejection of independent claim 13. As appellants have stated (brief, page 3) that claims 14-19<sup>3</sup> stand or fall with claim 13, and consistent with this statement have not provided separate arguments with respect to claims 14-19, claims 14-19 fall with claim 13. Accordingly, the rejection of claims 13-19 under 35 U.S.C. § 103 is affirmed.

We turn next to the rejection of independent claim 25. Appellants assert (brief, page 8) that Fujii does not disclose a

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<sup>3</sup> Although appellants list claims 14-20 as standing or falling with claim 13, we will address claim 20 separately, in view of the examiner's additional reliance on Kotz, as the claim stands rejected under a different ground under 35 U.S.C. § 103.

space between electrodes 3 and 1. Appellants assert that toner particles are not free to move between electrodes 1 and 3 because the area between the second and third electrodes are filled with insulating member 2. Appellants further argue that opening 4 in Fujii is simply a hole through the electrode/insulating member sandwich, and that there is nothing in appellants' disclosure or the plain meaning of "between" that suggests the device of Fujii is configured to allow free movement of toner particles between electrodes 3 and 1. Moreover, appellants argue (brief, page 9) that the toner particles in Fujii move through the electrodes via opening 4, not between the electrodes.

From our review of Fujii, we agree with the examiner (answer, page 5) that the broad terminology "between" includes the entire surface around the second and third electrodes. Fujii discloses (col. 5, line 67 through col. 6, line 2) that "the condensed toner 11a contacts the wall of the insulating members 2 between the insulating members 2 and the signal electrodes 1 as it passes through the opening 4." Although Fujii discusses movement of the toner in the context of condensed toner being clogged in opening 4, Fujii specifically uses the term "between" to describe movement of toner in the opening 4 between insulating member 2 and signal electrode 1. We find from this disclosure that Fujii suggests that movement of toner 11 between base

electrode 3 (second electrode) and signal electrode 1 (third electrode) constitutes movement of the toner "between" electrodes 1 and 3.

Thus, we find that movement of toner between the edge surfaces of electrodes 1 and 3, and the edge surface of insulating member 2, is movement between the electrodes. We agree with appellants that movement of the toner through opening 4 of Fujii can be considered to be movement through the electrodes. However, we find that as broadly drafted, movement of toner through opening 4 can also be described as movement of toner "between" the walls of the structures 1-3, through which opening 4 is provided, as suggested by Fujii. We are cognizant of the differences between appellants' disclosed structure and the disclosure of Fujii. However, we find that these differences are not recited in claim 25. From all of the above, the rejection of claim 25 under 35 U.S.C. § 103 is affirmed.

We turn next to claim 26, which depends from independent claim 25. Claim 26 recites that the second electrode spans the orifice in the third electrode. We reverse the rejection of claim 26, based upon our findings, supra, with respect to claim 1.

We turn next to the rejection of claims 3, 4, 6, 9, 11, and 20 under 35 U.S.C. § 103 as unpatentable over Fujii considered



with Kotz. We begin with claims 3, 4, 6, 9 and 11, all of which depend from claims 1 or 7. We reverse the rejection of these claims because Kotz does not make up for the basic deficiencies of Fujii with respect to independent claims 1 and 7.

We turn next to claim 20. The examiner's position (final rejection, page 5) is that Kotz "teach[es] an equation which expresses the force which is applied to the toner which is analogous to 'Q' or 'coulomb' which is recited in claim 20. The examiner asserts (id.) that the equation recited in claim 20 would have been obvious through routine experimentation since the equation "is innately a characteristic of all particles subjected to an electric field." Appellants have not provided any arguments with respect to claim 20, and have grouped (brief, page 3) claim 20 with claim 13, from which claim 20 depends. We therefore find that the examiner's prima facie case of obviousness of claim 20 has not been rebutted by appellants. Accordingly, the rejection of claim 20 under 35 U.S.C. § 103 is affirmed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 3-7, 9-11, 21-24, and 26 under 35 U.S.C. § 103 is reversed. the decision of the examiner to reject claims 13-20 and 25 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136 (a).

AFFIRMED-IN-PART

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
LANCE LEONARD BARRY	)	APPEALS
Administrative Patent Judge	)	AND
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STUART S. LEVY	)	
Administrative Patent Judge	)	

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